

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 19 JUL 2004

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Applicant's or agent's file reference TS9280 PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/04182	International filing date (day/month/year) 17.04.2003	Priority date (day/month/year) 18.04.2002
International Patent Classification (IPC) or both national classification and IPC F16N39/08		
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAP.B.V. et al		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of **3** sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 14.11.2003	Date of completion of this report 16.07.2004
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/04182

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-15, 17-32 as originally filed
16, 16a received on 19.04.2004 with letter of 16.04.2004

Claims, Numbers

1-11, 12 (part) as originally filed
12 (part), 13, 14 received on 19.04.2004 with letter of 16.04.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

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International application No. **PCT/EP 03/04182**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	2-14
	No: Claims	1
Inventive step (IS)	Yes: Claims	4-12,14
	No: Claims	1-3,13
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Reference is made to the following document:

D1: DE 921 239

Novelty

1. The subject matter of claim 1 is not new and is therefore not allowable.
From D1 it is known a process whereby a base fluid (oil) is mixed with a miscible diluent (Kraftstoff) in order to respond to changing operating conditions (starting). The base fluid is reversibly diluted (ausgedampft).

The process of D1 controls, by means of diluting, many properties of a lubricant, for example viscosity, specific weight, boiling point, volatility etc..

2. Claims 2-14 are considered to be new

Inventive Step

3. Claim 2 is not inventive: the controlled properties can be chosen at will.

4. Claim 3 is not inventive: the parameters characterizing the fluid can be chosen during a setting process.

5. Claim 13 is not inventive. In D1 (figure 1) an apparatus is shown whereby a reservoir for the diluent is foreseen (petrol tank), mixing point 27 and dispensing means 28 are present. Separating means for removing diluent are constituted by tank 22 and all the hot parts of the engine where vaporisation can take place; the diluted lubricant contacts operating parts of the engine (column 2 lines 16-20).

The claimed device differs from the cited prior art because the diluent is condensed and stored for re-use.

It would be obvious for a skilled man to condense and re-use the diluent because of the emission laws and the fact that condensing devices for distilled oil vapours are known.

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6. Claims 4-12 and 14 are considered to be inventive

Industrial Applicability

Industrial applicability is given for all the claims.

separation of the diluent from the base fluid. The means for reversibly diluting the base fluid with the diluent include means for adding the diluent to the base fluid and means for removing diluent from the base fluid.

5 The apparatus of the present invention may further comprise:

- (i) reservoir means comprising a diluent;
- (ii) a mixing zone comprising a base fluid;
- (iii) dispensing means for supplying the diluent from the
10 reservoir means to the mixing zone;
- (iv) separating means for removing diluent from the mixing zone; and
- (v) means enabling the contents of the mixing zone to contact an operating component of the system.

15 The mixing zone may be, e.g. the sump or main fluid reservoir for a transmission or the main fluid reservoir in a hydraulic system. The means enabling the contents of the mixing zone to contact an operating component of the system may comprise a series of pumps and an oil
20 circuit.

 The apparatus may also comprise means for monitoring a change in system operating conditions such as a programmable controller which may form part of a main engine management system. The programmable controller
25 may be used to assess the current composition and properties of the mixture and to instigate the withdrawal or addition of diluent as required by the state or operating condition of the machine.

 The apparatus of the present invention comprises
30 means for separating the base fluid from the diluent. Separation may be effected by evaporation or distillation of the relatively volatile diluent from the mixture of

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ART 34 AMDT**

(ii) lubricant or working fluid that has already passed through an evaporation or distillation stage;

(iii) heat of vaporisation from hot vapour in a distillation or evaporation chamber;

5 (iv) exhaust gases; and

(v) an electrical heating stage.

13. An apparatus for carrying out the process of any one of the preceding claims which comprises:

(i) reservoir means comprising a diluent;

10 (ii) a mixing zone comprising a base fluid;

(iii) dispensing means for supplying the diluent from the reservoir means to the mixing zone;

(iv) separating means for removing diluent from the mixing zone; and

15 (v) means by which energy generated during operation of the system is utilised by the separating means to separate the diluent from the mixing zone.

14. Use of a working fluid composition comprising water as a diluent and a base fluid which comprises glycerol and one or more additional components selected from alkylene glycols and/or polyoxyalkylene glycols in a hydraulic system.

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ART 34 AMDT